Ferrand Jordan Repayment Model

What: BPA is using new repayment model software

Why: 1) The old model was written in Fortran and it was becoming increasingly difficult to find people proficient in Fortran programming to modify and keep the program running.

2) The old model was not developed to accommodate scenario analysis, which has become a critical need at BPA.

3) The new Ferrand Jordan model offers more flexibility within the optimization goals as well as an interface that uses all of the benefits of a Windows-based approach.

Methodology: The new Ferrand Jordan Munex model offers two basic modes of operation;

1) The first mode uses the ***same*** equations used in the FORTRAN repayment model, but uses simplex calculation method of linear programming rather than binary iteration to optimize. This provides more optimal results by virtue of fully accounting for the long and short term costs associated with refunding each bond during a given time period.

2) The second mode is a ***full replication*** of the original FORTRAN model AND IS THE MODE THAT BPA IS USING FOR REGULATORY REPAYMENT RUNS. It includes the portion of the engine which determines which bonds to call based on highest coupon adjusted for the call premiums

Changes: 1) One minor change the Ferrand Jordan model introduces is to stop the practice of rounding all numbers to the nearest $1000. All numbers generated by the Ferrand Jordan model are un-rounded, which gives a greater degree of accuracy to the results.

2) A major change between the models is in the way the input data is formatted and manipulated. Instead of producing and maintaining separate database files (in the form of a text file) for each year (15 files for a 5-year run), the new model now keeps all obligations in only 3 databases—a historical federal, a projected federal, and a third party. This is not only an incredible time saver, but significantly reduces input errors and facilitates error tracking.